ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

Solutions of Worksheet-26

SUBJECT – MATHEMATICS

2nd-term

Chapter: LPP **Class: XII**

Topic : LPP **Date: 17.11.2020**

Choose the correct option (1 X 15= 15)

Question 1.

Feasible region in the set of points which satisfy

(a) The objective functions

(b) Some the given constraints

(c) All of the given constraints

(d) None of these

Question 2.

Of all the points of the feasible region for maximum or minimum of objective function the points

(a) Inside the feasible region

(b) At the boundary line of the feasible region

(c) Vertex point of the boundary of the feasible region

(d) None of these

Question 3.

Objective function of a linear programming problem is

(a) a constraint

(b) function to be obtimized

(c) A relation between the variables

(d) None of these

Question 4.
A set of values of decision variables which satisfies the linear constraints and nn-negativity conditions of a L.P.P. is called its
(a) Unbounded solution
(b) Optimum solution
(c) Feasible solution
(d) None of these

Question 5.
The maximum value of the object function Z = 5x + 10 y subject to the constraints x + 2y ≤ 120, x + y ≥ 60, x − 2y ≥ 0, x ≥ 0, y ≥ 0 is
(a) 300
(b) 600
(c) 400
(d) 800

Question 6.
The maximum value of Z = 4x + 2y subject to the constraints 2x + 3y ≤ 18, x + y ≥ 10, x, y ≤ 0 is
(a) 36
(b) 40
(c) 30
(d) None of these

Question 7.
In equation 3x − y ≥ 3 and 4x − 4y > 4
(a) Have solution for positive x and y
(b) Have no solution for positive x and y
(c) Have solution for all x
(d) Have solution for all y

Question 8.
The maximum value of Z = 3x + 4y subjected to contraints x + y ≤ 40, x + 2y ≤ 60, x ≥ 0 and y ≥ 0 is
(a) 120
(b) 140
(c) 100
(d) 160

Question 9.

Maximize Z = 11 x + 8y subject to x ≤ 4, y ≤ 6, x + y ≤ 6, x ≥ 0, y ≥ 0.

(a) 44 at (4, 2)

(b) 60 at (4, 2)

(c) 62 at (4, 0)

(d) 48 at (4, 2)

Question 10.

Maximize Z = 3x + 5y, subject to x + 4y ≤ 24, 3x + y ≤ 21, x + y ≤ 9, x ≥ 0, y ≥ 0

(a) 20 at (1, 0)

(b) 30 at (0, 6)

(c) 37 at (4, 5)

(d) 33 at (6, 3)

Question 11.

Maximize Z = 4x + 6y, subject to 3x + 2y ≤ 12, x + y ≥ 4, x, y ≥ 0

(a) 16 at (4, 0)

(b) 24 at (0, 4)

(c) 24 at (6, 0)

(d) 36 at (0, 6)

Question 12.

Maximize Z = 7x + 11y, subject to 3x + 5y ≤ 26, 5x + 3y ≤ 30, x ≥ 0, y ≥ 0

(a) 59 at $(\frac{9}{2}, \frac{5}{2})$

(b) 42 at (6, 0)

(c) 49 at (7, 0)

(d) 57.2 at (0, 5.2)

Question 13.

Maximize Z = 6x + 4y, subject to x ≤ 2, x + y ≤ 3, -2x + y ≤ 1, x ≥ 0, y ≥ 0

(a) 12 at (2, 0)

(b) $\frac{140}{3}$ at $(\frac{2}{3}, \frac{1}{3})$

(c) 16 at (2, 1)

(d) 4 at (0, 1)

Question 14.

Maximize $Z = 10 x_1 + 25 x_2$, subject to $0 \le x_1 \le 3, 0 \le x_2 \le 3, x_1 + x_2 \le 5$

(a) 80 at (3, 2)

(b) 75 at (0, 3)

(c) 30 at (3, 0)

(●) 95 at (2, 3)

Question 15.

$Z = 20x_1 + 20_2$, subject to $x_1 \ge 0, x_2 \ge 0, x_1 + 2x_2 \ge 8, 3x_1 + 2x_2 \ge 15, 5x_1 + 2x_2 \ge 20$. The minimum value of Z occurs at

(a) (8, 0)

(b) $(\frac{5}{2}, \frac{15}{4})$

(●) $(\frac{7}{2}, \frac{9}{4})$

(d) (0, 10)

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